STANDARD SETTING AND CONSORTIUM STRUCTURES

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Today, the sources of "standards", broadly construed, constitute a wide spectrum indeed: from the market-power derived, vendor-imposed user environment that is MS Windows and Windows compliant applications, to international bodies such as ISO (the International Organization for Standardization) which promulgate a broad array of standards through a broad, participatory process.

To the end-user (as compared to a vendor competing with other vendors), the source of a standard is of less concern than the utility of the standard offered (or even imposed). To some end-users, the quality of the standard is in fact secondary to the requirement that a standard, any standard, exist for ease of learning and using applications software (MS Windows again is the best example).

Be that as it may, the market would still prefer a good, and not merely a mediocre standard. But what is a "good" standard? And what source is most likely to yield a good standard? Finally, when any group of persons or entities embark upon the task of creating a standard, how can they create a process which is most likely to create a good standard?

For argument's sake, let us say that a "good" standard must embody at least the following, very briefly stated, attributes:

- Its *technical quality* must be high (e.g., it must be practical to implement, efficient in its operation and result, compatible with other standards and technical realities, etc.);

- It must be an effective *solution* to the problem(s) which gave rise to the effort;

- It must be *timely* (i.e., it must be created and made available in a time frame in which it is still useful); and

- It must, in fact, be widely *adopted*, or its benefit to those employing it is usually greatly reduced.

Of these factors, the last is in many ways the most important (this is the basic reason that most end-users have become MS Windows users, notwithstanding its technical problems, missing features, and much delayed introduction relative to, for example, the Macintosh interface).

Lying somewhere roughly equidistant between the unilateral de facto standard impositions of Microsoft and the broad, participatory process leading to the development of de jure standards by bodies such as ISO are a plethora of groupings of companies which have come together to address, most typically, a single discrete technical need. The common goals of these groupings may be as narrow as setting a consensus-based interface standard for music hardware and software (i.e., the MIDI Manufacturer's Consortium), or as wide as promoting standards perceived as being necessary to enable the effective development of a new type of programming (i.e., the Object Management Group, or OMG, formed to promote and facilitate object oriented programming techniques). These groupings, variously formal and informal, are usually referred to as consortia.

Among the virtues of consortia is their potential (not always realized) to create standards quickly, due to the fact that the participants are usually strongly motivated to reach the result. As a consequence of this desire for progress, the processes followed are not always as formal or as interest-group inclusive as those employed by the de jure bodies. Among their vices is a propensity for individual companies to promote their self-interest, a goal sometimes facilitated by such less formal processes.

Some proprietary vendors invest considerable time and effort in forming and participating in a consortium with the objective of injecting some proprietary element into the final standard which they believe will favor them in the marketplace. Such tactics are dangerous, however: if the vendor overplays its hand, the standard will be viewed as too favorable to, or dependent on, one vendor, and that vendor's competitors will back away from the standard. Accordingly, any vendor which seek to steer a standard too closely towards its own technology must be mindful that if the standard is never widely adopted, the vendor not only may fail to reap the special advantage which it sought, but may also in fact jeopardize its entire business when the standard underlying the development of its product line is not seen by its potential customers as being useful.

In consequence, those who would form a consortium must be mindful that this type of organization is a delicate flower, and that great care must be exercised in forming and operating it in order that a timely, technically elegant, and widely adopted solution is created. To focus too closely on individual self interest is likely to lead to the creation of products which customers ignore.

This article will focus on those consortia which are formed, not by a group of companies promoting a particular proprietary product set (such as PowerOpen, formed to promote the IBM-Apple-Motorola PowerPC microprocessor architecture and the development of software for that environment), but rather those consortia which are the result of collective action by a group of companies seeking a common solution. The former type of consortium is referred to below as a "strategic" consortium, while the latter is referred to as a "standard setting" consortium.

Odds of Success

Historically, the success of consortia has correlated strongly and negatively to proprietary influences: those that have been formed to promote single-vendor solutions, or which have been formed where individual members had competing, mature technical solutions, have fared poorly. In the first case, consortia have usually been ineffective to significantly push or pull the market: if the underlying technology is not successful (usually for market, as opposed to technical reasons), the consortium will fail as well, even if the consortium is successful in persuading independent software vendors (ISVs) to port sufficient software to the promoted platform. In the second case, it is often too difficult to reach and maintain consensus among companies that have invested too heavily in their own proprietary courses of action, notwithstanding their recognition in the abstract that they would each benefit from the development and mutual adoption of as comprehensive a standard as possible.

In contrast, in consortia which this author has previously referred to as being "ahead of the curve" [footnote 1], and which others have referred to as "anticipatory consortia" [footnote 2], the odds of success can be high. In this type of consortium, there is a commonly perceived need for a solution, but no single member has invested so heavily in a specific technology that it is unwilling to work with competitors to develop a non-proprietary "good" standard. Object Management Group, now the largest software consortium in the world, is perhaps the best example of such an organization. However, since companies do not commonly bother to form consortia until there is at least an agreed upon future reality

to the need for an industry standard, proprietary self-interest, and therefore jockeying, usually emerge quickly enough, even in those consortia which were formed ahead of the proprietary curve.

Democracy and Standard Setting

One challenge then in forming a consortium is to guard against the influences of evolving proprietary forces.

Less dramatic but still significant is the fact that the most frequent founders and strongest economic contributors to most consortia are vendors and, even in the case of software standard-setting consortia, the majority of those most-involved members are hardware vendors. As a result of their usually greater economic contributions and early and substantial efforts to launch the enterprise, there is often a bias on the founders' part to structure the consortium in such a way as to guarantee to them a greater degree of influence than those who contribute less financially. This natural tendency can have several negative results on the resulting standard, when viewed in the context of the four "good" standard attributes noted above:

- where there is a lack of meaningful input from ISVs and end-users, an ineffective, or technically poor, solution may result;

- where too great influence is given to the large members, smaller companies may not join, since they perceive that they will have little or no effective influence on the standards development process. As a result, these smaller companies may also never adopt the resulting standard, and may even pursue other solutions or develop other specifications which will compete with the standard;

- the cooperation of the largest software vendors is usually essential (e.g., the providers of database and other core software products), since there is much competition for their porting resources. While theoretically many standards should ease general product development as well as porting for these vendors, they are used to being able to command seven figure porting fees from individual vendors for porting services, and they are therefore not always economically motivated to participate in all types of standard setting.

Accordingly, to be effective, a consortium is well advised to create a structure which gives all necessary interest groups (at minimum, hardware vendors, independent software vendors, and, ideally,

customers) not only output, but input as well. Too often, all but the biggest companies receive only information only, and are not permitted to be true participants in the standard development and adoption process.

Set against this goal is the practical reality that operating funds are needed by all consortia, even where no paid staff is involved. In order to receive these funds, consortia typically give director seats, voting privileges, early technical access, and other benefits to those that write the largest contribution checks (typically, for non-strategic consortia, in the $25,000 to $50,000 per year range). When forming a new consortium, the challenge is to grant enough special privileges to those bringing the greatest economic support, while providing adequate incentives for other interest groups to promote a common cause with sponsoring members, and affording such interest groups sufficient opportunity to give useful input.

Structure and Solution

The number of membership and committee layers and the rights of these layers within a given consortium can (and should) vary widely, as the nature of the participants and their goals vary widely from consortium to consortium. For example, until the recent formation of a lower-fee end-user class of membership in the X Consortium (the developer of the X Window System for the Unix operating system), that entity granted equal rights of participation at all levels to all members, although the fees which large members paid were greater than those paid by small companies. Prior to its spin-out from MIT, the X Consortium in fact had a single governing group (the Advisory Board), in which all members were entitled to participate equally. As part of a continuing evolution of its mission, the X Consortium now has a Board of Directors, and is forming a business committee of interested members.

In contrast, the Open GIS Consortium (OGIS) has a rather complex structure which has been carefully constructed to permit maximum participation by different members with different technical concerns at different levels, thereby matching level of contribution with degree of interest level. The result is an organization which will be able to coordinate development of integrated standards in different parts of the rapidly evolving world of geodata information. This structure is worth examining in some detail, as it demonstrates how, with care, a structure can be developed which is likely to ensure maximum input and involvement by those necessary to create good standards, as well as eventual adoption of those standards.

As with most consortia, OGIS has various classes of members, each with a different set of rights. However, these rights do not simply scale with economic contribution. Instead, several categories of membership relate primarily to specific activities: e.g., the members of the TestBed member class are entitled to participate in the OGIS technology testbed program by submitting their own, individual testbed implementation proposals, and the Technical Committee class, which has the same rights to participate in technical activities as the Principal Class, but without the additional rights and higher membership fees of the Principal member Class.

As with most incorporated consortia (and any serious consortium should be incorporated), OGIS has a Board of Directors which is charged with setting the overall strategic direction of the consortium, as well as fulfilling the legal function of overseeing its actual operations. Unlike most consortia, the charter and by-laws of OGIS permit the establishment of more than one "Track" of membership, with each Track having a specific technical or other mission within the general purpose and goals of OGIS. Each new member of OGIS thus becomes a member, not of OGIS as a whole, but of a single Track (or, if it wishes to pay higher fees, multiple Tracks) of membership. Each Track has its own executive director, technical committee chairman, technical committee, work groups, SIGs and, perhaps most significantly, its own Management Committee.

The Management Committee of a Track is composed of one representative of each Principal (highest fee) member of that track, as well as two other categories of participants: the first category is made up of the members of the Board of Directors Executive Committee (thus ensuring coherence of action between management layers), while the second comprises representatives of the lowest member class of the Track (thus ensuring end-user and other non-vendor input). In order to further integrate the layers of governance, the Management Committee of each Track also elects several representatives to the Board of Directors, and the executive director and technical committee chairman of each Track are automatic Board members. The Board may also have members from government, academia or elsewhere, who are regarded as being useful contributors to forming strategic direction and achieving goals.

In OGIS, it is the Management Committee of a Track which sets the specific standard objectives and which has the formal power to adopt finished standards when the process is complete, so long as

those standards remain within the overall strategic path set by the Board of Directors (this result is assured by the monitoring done by the Executive Committee members who are also members of the Management Committee). The various technical committees, work groups and special interest groups of the Track also "report" ultimately to the Management Committee of the Track, and not to the Board of Directors.

While OGIS currently has a single Track, other Tracks are contemplated for the future. At the time that the next Track is created, the Board of Directors will be expanded (with perhaps some reduction in the number of representatives elected by the current Track) to provide equal representation to all Tracks.

While in this model the powers of the Board of Directors are reduced somewhat (most consortia would give the powers held by OGIS Management Committee members to the Board of Directors), the OGIS model permits the Board to focus more clearly on long-term strategic and industry-wide issues and gives maximum influence to that subset of members which is most concerned with specific technical areas and standards. The overlap of the Board and the Management Committee ensures coherence of planning and coordination of results.

Know Thyself

It is always the case that the most that can be achieved by the founders of a consortium is an approximation of a final working structure. This is because specific members will bring specific needs and viewpoints to the table in the future, because the market and technology will continue to move and change, and because launching a consortium is like launching a commercial product: the founders must guess what structure and what rules (set forth in the charter, by-laws, Board-adopted policies and Technical Committee rules and guidelines) will be most successful at attracting members and smoothly producing results. Typically, by-laws, policies, rules and guidelines will change frequently in the first year of operations, and thereafter evolve as the organization evolves.

Nonetheless, the success or failure of a consortium will relate in no small part to the success of the founders in constructing a structure which is as close as possible to the correct model to achieve the goals at hand. For example, incorrectly conceiving member classes, rights and fees to any great degree may prevent a critical mass of members from joining. Equally importantly, failing to provide for meaningful input and access by all those whose

eventual adoption of resulting standards is crucial to success will often result in their dropping their membership and failing to adopt those standards.

The by-laws, technical committee rules and adoption processes instituted must also erect checks and balances and other effective barriers to avoid proprietary influences from subverting the search for "good" standards. If these rules are not put in place from the start, those same forces will work to prevent their later adoption.

Guardians at the Gate

Most successful consortia are in fact the creation of individuals, and not companies. Typically, a single individual or group of individuals has a vision which they persuade their employers or vendors to endorse, and then that individual(s) works to propose a structure, charter and by-laws for adoption by founding members. While those founding members (usually paying for admission at the highest and most influential level) typically focus closely on the technical objectives of the effort, the fees which they will be expected to pay and the rights which they will enjoy, they often pay comparatively little attention to the rights and participation of other classes of members. As a result, the efforts of the individuals who actually structure the consortium, and their prescience in creating a consortium sensitive and responsive to the needs of other, future members (large and small) and the market in general, will have a far-reaching effect which is little appreciated at the outset.

Similarly, even an effective structure will be to little avail if those who actually moderate meetings do not understand the process and fail to act to prevent proprietary influences from working against proper operation of the consensus-setting process. The regrettable fact is that, absent effective rules and strong chairmen of technical, management and other committees enforcing those rules (and sometimes even in spite of such safeguards), the effort to achieve "good" standards will often be subverted in obvious and not so obvious proprietary skirmishes. In some cases, these skirmishes may give rise to potential violations of antitrust laws, raising the additional specter of civil and criminal penalties for those involved in the process.

Open . . . Means Open

In the final analysis, the appropriate role of consortia as a mode of developing "good" standards is highly dependent on factors which often are not clearly discussed. While it may seem simplistic to say

that since the market increasingly demands open systems, and therefore companies must work to be sure that standards are indeed openly arrived at, there are many forces which work against that result.

Consortia can often be the best way of efficiently and effectively creating "good" standards, particularly in a speedy fashion. They can also be a prime tool for government and private enterprise cooperating to create evolving technical standards structures, such as those upon which the evolution of the information superhighway will be dependent. But in order to achieve this goal, the founders of such consortia must create a firm foundation intended to support robust development, consensus building and eventual standards adoption by a wide community. Such a foundation must be tailored to the technology, the market, the participants and all other important factors peculiar to the challenge at hand.

In sum, the process of creating an effective consortium structure begins with careful analysis of all factors (including proprietary forces) which apply, with this analysis then being followed by the skillful design of an entity equipped to attract members, secure their participation, and produce standards which earn the respect and endorsement of members and non-members alike. The result of this analysis and creative effort can be - and in many instances already has been - the creation of "good" standards by consortia.

NOTES:

1. Updegrove, Andrew (1993). Forming, Funding and Operating Standard-Setting Consortia. IEEE Micro, 13(6), 52 - 61.

2. Weiss, Martin and Cargill, Carl (1992). Consortia in the Standards Development Process. Journal of the American Society for Information Science, 43(8), 559 - 565.